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Author(s): E. Paul Torrance

Source: *American Sociological Review*, Vol. 19, No. 6 (Dec., 1954), pp. 751-755

Published by: American Sociological Association

Stable URL: <http://www.jstor.org/stable/2087922>

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than the latter,<sup>23</sup> largely, we may suppose, because the variables involved are more easily recognized and isolated for investigation.<sup>24</sup>

The solution of the internal problems requires activity whose nature cannot be fully spelled out at this stage. The promotion of solidarity and consensus (or perhaps, on occasion, their disruption) is one way of formulating the chief social-emotional problem, and the integration of sentiments

through symbolization is perhaps one major technique of this promotion. In terms of individuals, the man who symbolizes this sort of group goal has a claim to leadership in the same way as the most active man or the man who has the most good ideas has a claim. If an individual has the power to symbolize the effective reality of a set of beliefs concerning what is true and proper and serves as a living demonstration that what is held to be desirable is in fact possible, insofar as these things are accomplished it would seem to be legitimate to say that a real function is being performed and that a real problem is being met.

#### CONCLUSION

This has been a summary report on an experimental study of problem-solving small groups designed to show the effects of different value-orientations on small group interaction. The most fundamental assumption of this study was that even *ad hoc* four-man groups may be studied in terms of a conception of the social system which is derived from more macroscopic analysis. It is the belief of the author that the assumption was fully justified and that there is evidence to show that many of the same principles and considerations apply to both large scale and small scale interactive systems.

<sup>23</sup> In a study by Arthur Couch and Launor Carter it was found that observers in judging leadership and its attributes tended to think in terms of the aggressiveness and initiative of the leader in the solution of the group tasks and not in terms of his role in "Group Sociability" (i.e. "Striving for group acceptance, cooperation, and adaptability . . . representing a friendly interpersonal pattern of behavior towards the group."). Cf. Launor F. Carter, "Leadership and Small Group Behavior" in Muzafer Sherif and M. O. Wilson, *Group Relations at the Crossroads*, New York: Harper and Bros., 1953, p. 269.

<sup>24</sup> While future research may try to even up the balance, so to speak, it is the conviction of the present writer that this can profitably be done only in terms of a conception of the problem-solving group as a system which is concerned with *both* internal and external problems. To study one sort of phenomenon without attention to, or even any very coherent notions about, the other sort is as though a student of music were to concern himself only with high notes, leaving the low ones for another researcher.

## THE BEHAVIOR OF SMALL GROUPS UNDER THE STRESS CONDITIONS OF "SURVIVAL"

E. PAUL TORRANCE \*

*Survival Research Field Unit*

THE research project described in this paper is a part of a program of research designed to develop a "psychology of survival." "Survival" as used in this project means "to live where others would die" and is specifically concerned with survival problems of Air Force personnel forced down over enemy territory. The specific purpose

of the project described in this paper is to develop concepts concerning group functioning under survival conditions which might be useful in training combat air crews to behave effectively under the stress of survival situations.

A variety of methods has been used and a series of studies is under way. Methodologically, these studies include: A survey of the relevant literature,<sup>1</sup> the analysis of survival experiences taken from interviews with men

\* The author is indebted to Dr. Alvin F. Zander of the Research Center for Group Dynamics of the University of Michigan for his critical reading of this paper and for his helpful suggestions.

Paper read at the annual meeting of the American Sociological Society, August, 1953.

<sup>1</sup> E. P. Torrance, *The Psychological Aspects of Survival: A Survey of the Literature*, HFORL Report No. 35. Washington: HFORL, 1953.

who have been downed in enemy territory, and laboratory and field experiments. Some of the studies concerned with small group behavior include: group decision making, organization for survival, perception of group functioning, status relationships, fear, conflict, and "set."

#### PROCEDURES

In the present study, approximately 200 interviews were conducted with Air Force personnel who had been downed over enemy territory during World War II or over Korea during the present conflict. All interviews with World War II survivors (about 75) and a few of the Korean survivors (about 10) were conducted by HFORL staff members. The remainder were conducted by intelligence officers. In a few cases, the accounts of all members of the group were available; in some, however, the account of only one member was available.

Approximately 1,000 critical incidents were abstracted and analyzed to develop hypotheses concerning effective and ineffective functioning under actual survival conditions which might be worth further study. These hypotheses were then tested against the total accounts of the survival experience.

#### SOME CONCEPTS REGARDING GROUP FUNCTIONING UNDER SURVIVAL CONDITIONS

*The Unstructured Nature of the Survival Situation.* Experimentation with other types of groups has demonstrated the importance of clarity of structure.<sup>2</sup> In survival, two broad types of clarity of structure are involved: structure of the field (i.e., paths to survival) and structure of the group. Structure of the field refers to the degree of clarity or unclarity to which paths will lead to the goal of survival. Group structure refers to the degree to which certain patterns of interdependencies or linkages have been stabilized.

Combat flyers are accustomed to functioning in relatively structured situations in which both the goal and group structures are well

defined. Each individual has been given, or has taken over, certain functions. These functions to a large extent automatically define the frequency and kind of interaction they will have with each other. Out of these interactions, certain linkage patterns become differentiated or "set."

When a survival situation arises, however, unusual problems occur which the usual goal and group structures may be quite inappropriate to handle. Members do not know what they must do in order to survive nor who should do what. Adequate clarity, then, must be achieved in order for the group to survive.

#### STRUCTURE OF THE FIELD

Two general types of behavior detrimental to survival were found to result from lack of clarity of the situation. One was a random, trial and error type of behavior. The other was the development of a feeling of hopelessness which usually led to surrender to the enemy.

Frequently, unclarity of structure results from a failure of the aircraft commander or other member of the crew to keep all of the members briefed regarding happenings. When the aircraft commander kept up a running account during the entire in-flight emergency, crew members stated that this helped them to keep calm and to know what to do in order to survive. When crew members were not kept briefed, individuals have been known to bail out when there was no need to bail out, to fail to bail out when it was necessary to bail out, and to exhibit other panic reactions.

In some cases, however, the situation is so ambiguous that structuring is difficult. Such situations require analysis and group problem-solving.

Survivor group behavior shows that relief and behavior of increased survival value results when the structure of the situation becomes clear. This is dramatically illustrated in the story of one survivor in Korea. He and other members of his group were suffering from injuries and other ailments and were feeling rather hopeless. One night he chanced to see a searchlight which revealed the location of the front. He then started planning his escape and forgot his "miseries."

<sup>2</sup> A. R. Cohen and A. F. Zander, "The Effects of Clarity of the Job and Confidence in One's Self on the Reactions of Telephone Operators" (dittoed paper). Ann Arbor: Research Center for Group Dynamics, University of Michigan, 1953.

Having a common goal is a force which helps to hold a group together in a survival emergency. Survivors describe many types of cooperative action, including such things as shifting roles in the aircraft when a member is wounded, giving first aid under attack, calming panicky members, stimulating one another to unusual resourcefulness, setting up a guard while others sleep, and the like.

When individual members lose their goal-orientation, it is frequently the operation of the group's goal-orientation and the common danger that saves them. In one such incident, a bombardier during his crew's survival attempt wanted to quit, but the aircraft commander drew his gun on him and told him that he would shoot him rather than leave him behind. The bombardier, thinking that he would, got up and went along. The escape of the whole group was linked together and his remaining behind threatened the lives of the entire group.

In some cases, however, it is the individual's goal-orientation that must salvage the group's goal-orientation. Howard, in his analysis of survival experiences in the Southwest Pacific in World War II, found that the group may serve as a barrier in overcoming food prejudices.<sup>3</sup> The barrier against eating strange foods usually had to be broken by some individual saying that he would rather eat the particular food than to starve.

#### GROUP STRUCTURE

It appears that the capacity of a group to survive depends in no small part upon its skill in organizing its efforts. This conclusion finds support in laboratory research such as that of French in which marked differences were found between organized and unorganized groups when subjected to fear-producing stimuli.<sup>4</sup> Unorganized groups showed more signs of disintegration than did organized groups. A common danger is not adequate to weld together members of a group. Panic may also result when competition rather than cooperation arises in the

emergency; and, when everyone is uncertain, a movement on the part of one individual tips the scales in the direction of the same action. These phenomena have been studied in laboratory experiments by Mintz<sup>5</sup> and by Sherif and Harvey.<sup>6</sup>

Feelings of liking or disliking between group members have been given much attention by psychologists. Although incidents of inter-personal hostility occur in survival, incidents of the opposite type predominate. Individuals crowd together or continually pound one another to keep warm. While parachuting, they count the other parachutes descending and try to identify fellow crewmen. There is also an unwritten code that injured crewmen will be bailed out by the uninjured. When this does not occur, it is probably due to weak affectional linkages.

When the inevitable feelings of hostility are recognized during an extended survival attempt, positive action is usually taken and little damage results. Failure to recognize such feelings have been fatal.

Another important factor in group structure is authority or power. In the bomber crew, the aircraft commander is the member of the crew with the greatest power. An analysis of the survival experiences of bomber crews indicates that if this power is not assumed properly the crew's chances of survival are greatly endangered.

A number of special survival problems surrounds the status position of the aircraft commander. Considerable evidence has been found to substantiate the findings of Polansky, Lippitt, and Redl that individuals with high group prestige more frequently initiate behavioral contagion.<sup>7</sup>

In one crew, the navigator became panicky but looked up and saw that the aircraft commander and the pilot were still in their seats doing their jobs and he became calm. In another crew, a bombardier, who had a reputation of being unusually calm, looked

<sup>5</sup> A. Mintz, "Non-Adaptive Group Behavior," *Journal of Abnormal Social Psychology*, 46 (1953), pp. 150-159.

<sup>6</sup> M. Sherif and O. J. Harvey, "A Study in Ego Functioning: Elimination of Stable Anchorages in Individual and Group Situations," *Sociometry*, 15 (1952), pp. 272-305.

<sup>7</sup> N. Polansky, R. Lippitt, and F. Redl, "An Investigation of Behavioral Contagion in Groups," *Human Relations*, 4 (1950), pp. 319-348.

<sup>3</sup> R. A. Howard, 999 *Survived*, Maxwell Air Force Base, Alabama: Air University, 1950.

<sup>4</sup> J. R. P. French, Jr., "Organized and Unorganized Groups Under Fear and Frustration," in *Studies in Topological and Vector Psychology*, Iowa City: University of Iowa Press, 1944.

up and saw "horror written on the aircraft commander's face" and immediately became panicky.

Support is also found for Hurwitz, Zander and Hymovitch's finding that fewer communications will be directed to those individuals of the group with lower status.<sup>8</sup> It has been observed that those in the rear of the B-29, usually recognized as being of lower status, are sometimes not kept briefed during an in-flight emergency. In some cases, these individuals do not even receive the communication to bail out.

There is some evidence to indicate that when the power distance is great between an individual and the other members of the crew, those lower may not feel a responsibility toward him. In one account of an over-water bailout, a lieutenant colonel with the crew was observed after the "prepare to bail out" signal by four members of the crew to be sitting on his dinghy which was not fastened to his parachute. Not one of these four survivors mentioned calling this to the lieutenant colonel's attention. Evidently, they expected a lieutenant colonel to look out for himself. The lieutenant colonel was drowned.

In regular bomber crews, the power relations are fairly well defined, but in other types of groups this may not be clear. In one group, no one wanted to assume responsibility for any action, so an Air Force officer decided to attempt to lead the group, although he was not the senior officer. His leadership was accepted and everyone was greatly relieved. There is a general feeling among survivors that a controlled unit has a far better chance of survival and that someone should be designated as leader and that the group stick with its choice.

Almost every story of 100 per cent successful crew survival is characterized by excellent descriptions of good communications procedures during the in-flight emergency and the ensuing events. Stories in which there is panic and a high percentage of non-survivors are characterized either by the lack of such descriptions or by descriptions which give evidence of breakdowns of communications. In some accounts, no men-

tion is even made of any order "to bail out."

Evidence indicates that having someone with whom to communicate in survival is essential to morale. One man panicked when he realized that he was the only man left in the plane. Another became panicky after he hit the ground and tried to find someone to whom he could surrender. When he found one of his fellow crew members, he continued his survival effort. A third wanted to talk with someone so badly that he surrendered. Many helicopter rescued flyers have described the calming effect of the voice of the helicopter pilot at a time when calm behavior was absolutely essential.

#### SUMMARY

The emergency situation of survival is one in which the structure of the field and the structure of the group possess a low degree of clarity.

Making a quick but adequate analysis of the situation, keeping all of the members of the crew briefed regarding happenings, and the maintenance of a goal orientation, are necessary in giving adequate clarity to the situation so that the men will know what must be done in order to survive.

The structure of the group may be affected in a number of areas. Each of these areas is a dimension of group structure (i.e., affect, communication, and power) on which a crew may have built a stable linkage pattern. Under stress, these linkages between members may become confused and thus people do not have a clear perception of what they can expect from one another, with whom they can relate, how they can relate to one another, and so on. The fact that this happens apparently influences the ability of the group to survive. Crew training and crew composition efforts should therefore be directed toward achieving a more stable group structure as well as developing more effective techniques for structuring the situation.

Failure of affectional linkages resulting in competition and disrupting hostility, a breakdown of group goal linkages resulting in immobilization of group action and excessive concern with individual ills rather than upon group locomotion, a lack of power linkages resulting in inability to reach group decisions and take necessary actions, and

<sup>8</sup> J. I. Hurwitz, A. F. Zander, and B. Hymovitch, "Some Effects of Power Among Group Members," *Human Relations*, in press.



breakdowns in communication are but a few of the symptoms of faulty group structure. Evidence of these should be identified in training and either corrected through training or appropriate changes should be made in crew composition.

Participation in the activities of a group under survival conditions calls for skills in individual behavior for which all members

are not adequately equipped, leading to tension, ineffectiveness, panic and withdrawal from participation. Crew members differ in their abilities to modify their roles with changing demands. Crew members, through training in the simulated survival situation, need to be trained to diagnose required roles, to perform them, and to modify their roles as required by group functioning.

## SOME FINDINGS RELEVANT TO THE GREAT MAN THEORY OF LEADERSHIP \*

EDGAR F. BORGATTA, ROBERT F. BALES, AND ARTHUR S. COUCH

*Russell Sage Foundation and Harvard University*

A CENTRAL area of research and theory in social psychological science, particularly in group dynamics and small group research, is that of "leadership." The interest apparently lies in the expectation that the "effectiveness" of group performance is determined in large part by the leadership structure of the group. Effective performance is usually defined by the joint occurrence of high task accomplishment and high satisfaction of members of the group.

There are at least six types of thinking about the optimum leadership structure of the group for effective performance.<sup>1</sup> (1)

\* This research, carried out at the Harvard Laboratory of Social Relations, was supported in part by the United States Air Force under Contract A33(038)-12782 monitored by the Human Resources Research Institute. Permission is granted for reproduction, translation, publication and disposal in whole and in part by or for the United States Government. We are grateful to Hugh Williams for assistance in computations.

<sup>1</sup> The classification of the six types represents our abstraction in this complex field. Thus each position may be represented without sufficient qualification. It is also probable that these positions may actually overlap in the thinking of various social scientists. Aspects of (1), the great man theory, will be found discussed in such different, recent sources as: F. Redl, "Group Emotion and Leadership," *Psychiatry*, 5 (November, 1942), pp. 573-596 and M. Weber, *The Theory of Social and Economic Organization*, New York: Oxford, 1947 (Chapter 3, the section on Charismatic Authority). The second theory (2) is probably that which underlies the situational concept of leadership. Sophisticated forms of this theory are found in: R. B. Cattell, "New Concepts for Measuring Leadership in Terms of Group Syntality," *Human Relations*, 4 (1951), pp. 161-184;

The most effective group is the one which has the most adequate all-around leader ("great man"). (2) The most effective group is the one in which all members have been chosen according to ability for the specific task. (3) The most effective group is the

and L. F. Carter, "Some Research on Leadership in Small Groups," in H. Guetzkow, *Groups, Leadership and Men*, Carnegie Press, 1951. The sociometric position (3) will be found considered in: J. L. Moreno, *Who Shall Survive?* Beacon, N. Y.: Beacon House, Inc., 1953; and Helen H. Jennings, *Leadership and Isolation*, New York: Longmans Green, 1950. The role differentiation theory (4) is considered in: E. Durkheim, *The Division of Labor in Society*, Glencoe, Ill.: The Free Press, 1947; and R. F. Bales and P. E. Slater, "Role Differentiation in Small Groups" (In press). The fifth (5) is usually implied in the theory that a group needs a "common culture base" in order to achieve adequate integration. At a general level, this theory underlies many of the clinical approaches, and it is evident in cultural anthropology. Such studies as those of national character also fit this theoretical position. See: A. Inkeles and D. Levinson, "National Character: The Study of Modal Personality and Socio-cultural Systems," in G. Lindzey, *Handbook of Social Psychology*, Cambridge: Addison-Wesley Press, 1954. The personality compatibility theory (6) is considered in: W. Haythorn, A. S. Couch, P. Langham, D. Haefner and L. F. Carter, "A Study of the Behavior of the Authoritarian and Equalitarian Personalities" (forthcoming), and W. Schutz, "Construction of High Productivity Groups," *Studies in Group Behavior*, Medford, Mass: Tufts College, 1953. Several other theories of leadership presented themselves in our consideration but are not classed here. For example, there is a group-centered approach built around a concept of no leadership. It is clear that a classification of leadership types and group structure requires additional attention.